Physical Activity Level and Health-Related Quality of Life in University Students

Nivel de actividad física y calidad de vida relacionada con la salud en estudiantes universitarios

Luis Manuel Jaramillo Metrio[1] iD ✉, **Jonathan Mejía Giraldo**[1] iD ✉, **Noelva Eliana Montoya Grisales**[1] iD ✉, **Enoc Valentín González Palacio**[2] iD ✉

[1] *Education Faculty; Universidad de San Buenaventura; Medellín; Colombia.*

[2] *Instituto Universitario de Educación Física; Universidad de Antioquia; Medellín; Colombia.*

Check for updates

Declaration of interests
The authors have declared that there is no conflict of interest.

Data availability
All relevant data is in the article. For further information, contact the corresponding author.

Abstract

Introduction. The university stage brings with it a series of new experiences and challenges, so there are different factors that alter the general levels of physical activity and the health-related quality of life. This research sought to establish the relationship between the level of physical activity and the health-related quality of life in students belonging to the faculty of education of a private university in the city of Medellín.

Method. A quantitative study with a correlational scope was carried out, with a total of 252 students belonging to the faculty of education of a university in Medellin, which were selected randomly from a stratified probabilistic sampling; the International Physical Activity Questionnaire (IPAQ-SF) and the of Health-Related Quality of Life (SF-36) were applied.

Results. It was found that most of the students (60.3%) have a moderate level of physical activity and that, the better the level of physical activity, the better the perception of the declared evolution of health. No significant associations were found between the level of physical activity and the dimensions of the quality of life related to health.

Conclusions. The level of physical activity tends to be independent of the dimensions of health-related quality of life.

Keywords

Physical activity; health-related quality of life, sedentary behavior; correlation of data; education; higher education; students; cross-sectional study; habits; university.

Resumen

Introducción. La etapa universitaria trae consigo una serie de experiencias y retos nuevos, por lo que existen diferentes factores que alteran los niveles generales de actividad física y de la calidad de vida relacionada con la salud. Esta investigación buscó establecer la relación entre el nivel de actividad física y la calidad de vida relacionada con la salud en los estudiantes pertenecientes a la facultad de educación de una universidad privada de la ciudad de Medellín.

Physical Activity Level and Health-Related Quality of Life
Jaramillo Metrio et al.

R**CS

Método. Se llevó a cabo un estudio cuantitativo con un alcance correlacional con un total de 252 estudiantes pertenecientes a la facultad de educación de una universidad de Medellín, seleccionados de forma aleatoria a partir de un muestreo probabilístico estratificado; se aplicó el Cuestionario Internacional de Actividad Física (IPAQ-SF) y el de Calidad de Vida Relacionada con la salud (SF-36).

Resultados. Se encontró que la mayoría de los estudiantes (60,3%) tienen un nivel moderado de actividad física y que, a mejor nivel de actividad física, mejor es la percepción frente a la evolución declarada de la salud. No se hallaron asociaciones significativas entre el nivel de actividad física y las dimensiones de la calidad de vida relacionada con la salud.

Conclusiones. El nivel de actividad física tiende a ser independiente de las dimensiones de la calidad de vida relacionada con la salud.

Palabras clave
Actividad física; calidad de vida relacionada con la salud; comportamiento sedentario; correlación de datos; educación; educación superior; estudiantes; estudio transversal; hábitos; universidad.

Introduction

The university stage brings with it a series of new experiences and challenges, among which the acquisition of new knowledge, new friends and colleagues, commitments and responsibilities that must be attended to stand out. In addition, it must be taken into account that it is a period in which crucial elements and factors for the academic background and life of the human being are acquired, thus being characterized by the reinforce of values, habits, and behaviors [1]. Taking this as a basis, it is possible to say that the university is a context with multiple changes and decisive situations in the dimensions of human development of university students, so aspects such as education, work, relationships, well-being, and health, among others, they can be modified or adapted.

The transition from elementary and secondary school to university life has been identified as a major change event, in which general levels of physical activity (PA) show a decreasing trend [2,3]. According to studies, although this decline in PA becomes evident during the transition from young adulthood to early adulthood, the greatest decline occurs around the time of entering college [4]. In addition, there is evidence that about 87.3% of university students have inadequate lifestyles with regard to their health, among which physical inactivity, bad eating habits and not carrying out self-care sexual behavior stand out, which that can cause the appearance of multiple diseases, added to the fact that physical inactivity is positioned as one of the main causes of death in the world [5-7]. Also, it has been recognized that it is common to identify differences by sex in HRQoL, where women tend to have the worst assessment [8]. The same occurs with PA levels, in which university women tend to have a higher prevalence of physical inactivity compared to men [9].

On the other hand, regular PA has been shown to have multiple health benefits, notably reducing the risk of coronary heart disease and stroke, hypertension, diabetes, colon cancer, breast cancer, and mental illness in this young population [10-12].

Physical Activity Level and Health-Related Quality of Life
Jaramillo Metrio et al.

R⚕CS

It is also relevant to highlight that the changes in the daily life of the subjects who are in the university are associated, in large part, with the sudden adaptation to the new methodologies, commitments and schedules, which leads to a notorious decrease in energy and of the time devoted to sports practice and physical activity [13]. In one way or another, this can affect HRQoL, to the extent that this construct involves issues ranging from physical, mental, and general health, to aspects related to social well-being and relationships with others, although in the Colombian case, some studies have reported adequate levels of HRQoL in university students [14], and that, indeed, quality of life tends to be related to other aspects of life, such as material conditions and standard of living, happiness, well-being, satisfaction and expectations [15].

There are studies that reported the associations of different dimensions of HRQoL with adiposity and cardiorespiratory capacity, supporting the positive connection between the level of PA and quality of life [16], for which the need to go further is imperative. regarding the possible relationship between these variables, in a population that is going through a stage as decisive as the university.

For all of the above, the main interest of this study is focused on establishing the relationship between the level of PA and HRQoL in students belonging to the Faculty of Education of a University in the city of Medellín, which is of great importance, because this type of diagnosis, in representative samples, allows us to know and estimate issues related to health from the declared perception of people, which can impact the development of health promotion programs and , in general, in the benefit of university welfare policies.

Methodology

This is a study with a quantitative approach, that is, "those that preferentially use measurable or quantifiable information" [17, p.1], and its scope was of a correlational type, since it was determined to what extent two or more variables are related to each other in this case the levels of PA and HRQoL in the university population.

The population (N) to which the study was directed were students of the education faculty of a Medellín university, which totaled 1051 subjects, which according to the training program were distributed as follows: bachelor's degree in physical education and sports (49.3%), bachelor's degree in Spanish and humanities (15.6%), bachelor's degree in early childhood education (14.7%), technology in sports training (11.8%) and bachelor's degree in artistic education (8.6%). A probabilistic sampling [18] was carried out, with a reliability of 95% (Z=1.96), an error of 5% and a probability of 50%, which determines that a minimum sample (n) is required for this study of 222 subjects, chosen proportionally according to the academic program (see Eq. 1). Following these indications, it was possible to investigate 252 students.

$$n = \frac{Z_{\frac{\alpha}{2}}^2 * pq}{E^2 + \frac{Z_{\frac{\alpha}{2}}^2 * pq}{N}} \qquad \tilde{n} = \frac{n}{1 + \left(\frac{n}{N}\right)}$$

Eq. 1. Equations for the calculation of the sample [18].
Note. ñ = adjusted sample.

Physical Activity Level and Health-Related Quality of Life
Jaramillo Metrio et al.

R⚕CS

 The inclusion criteria were to be students of the Faculty of Education of the investigated university, of legal age and who voluntarily participated in the study; Those subjects who did not fill out the informed consent, did not complete all the information collection instruments or decided of their own free will not to participate were excluded.

For the collection of information, the short version of the International Physical Activity Questionnaire (IPAQ-SF) was applied, which presented repeatable data of grouped Spearman's ρ of 0.8 and a criterion validity with a median of ρ of 0.30 [19]. In addition, it is one of the most used questionnaires with young people in the Latin American context and, including in Colombia [20,21]. This questionnaire consists of seven questions, distributed in four general topics: vigorous, moderate activities, walks and sitting time. On the other hand, the questionnaire determines, based on the activities of the people and their frequency of performance, if their level of PA is low or inactive, moderate, or high.

For HRQoL, the SF-36 questionnaire was used, which has been used in the Colombian context and, more specifically, in Antioquia, with interobserver and intra-rater reliability values greater than 0.8 [16]. This questionnaire is made up of 36 items that assess both positive and negative aspects of health, referring to general health, physical function, physical role, emotional role, social function, bodily pain, vitality, and mental health . Both questionnaires were self-filled in printed format. The collected information was recorded in the Excel spreadsheet and processed in the SPSS v. 27. Statistical significance was established at a value of $p<0.05$ with a reliability of 0.95. Effect size (*d*) *calculations* from the Mann Whitney U test (UMW) were performed in the program GPower-3.1.9.7. In the case of Kruskal Wallis (KW), this was done with the epsilon coefficient (H_R^2) [22]

To carry out the descriptive and correlative analysis, the assumption of normality was verified in the first instance, based on the Shapiro-Wilk (SW) test in the quantitative variables of age and the different dimensions of HRQoL, which were coded and transformed into a scale from 0 to 100. In these, a higher score indicated a better assessment of HRQoL, using the algorithms and instructions in the scoring and interpretation manual [23], in addition to the PA level variable, which is of a qualitative nature, but of an ordinal level (0 = low or inactive, 1 = moderate, 2 = high).

In the social profile, age was normal ($p>0.05$). Therefore, it was described with the mean and the standard deviation. Non-normal distribution ($p<0.05$) was found in the HRQoL dimensions, so non-parametric statistics, median (md) and coefficient of variation (cv) were used for its description. The Spearman's Rho test (r_s) was used to correlate the HRQoL dimensions with the PA level. The Mann Whitney U (UMW) and Kruskal Wallis (KW) tests were used in the comparisons, depending on whether there were two or more groups to be contrasted. The chi square test (X^2) was also used when two qualitative variables were associated and at least one of them was nominal.

The data collection instruments, the ethical protocol and the informed consent used in this study were reviewed and approved by the Bioethics Committee of the University of San Buenaventura, Medellín, on April 25, 2022, following the recommendations of the Helsinki Declaration. [24] and Resolution 8430 of the National Ministry of Health, Colombia [25]. Based on this resolution, this study was classified as no risk.

Physical Activity Level and Health-Related Quality of Life
Jaramillo Metrio et al.

R**CS

Results

The study was carried out with 252 students, 60.3% of whom were men (152) and an average age of 22 years (sd = 4.2). Regarding the socioeconomic stratum, it was found that the majority of students (60%) belonged to social stratum 3. In addition, the highest percentage of the subjects were studying the seventh semester (16.7%), followed by those of the third (15.9 %), ninth (10.7%) and second (9.9%).

In the presentation of the results, in the first instance the variable of PA levels is described, and how this is related to some variables of the social profile. Then, what was found in the HRQoL assessment and the relationships that it presents with the social profile are presented. Finally, the relationships between the HRQoL dimensions and these with the PA level are established.

In the description of the PA levels, it was found that most of the students have a moderate level (60.3%), followed by 21.4% at a low or inactive level, and only 18.3% presented an n high level (Table 1). When relating the PA level with the social profile variables, such as age, socioeconomic status and the semester completed, no statistical correlations or associations were found (r_s = -0.056 – 0.019; p>0.05). On the other hand, when associating the level of physical PA with sex (Table 1), a statistically significant association was found (X^2 = 11.0; gl = 2; p<0.01) between these variables, which was presented in favor of men, since they present a higher level of PA (19.7%) compared to women (16.0%). In addition, they presented a higher proportion of inactivity (32.0%) compared to men (14.5%).

Table 1. Chart of general physical activity and according to sex.

Sex			Low or inactive level	Moderate level	High level	Total
	Male	no	22	100	30	152
		%	14.5	65.8	19.7	100
	Female	no	32	52	16	100
		%	32.0	52.0	16.0	100
	Total	no	54	152	46	252
		%	21.4	60.3	18.3	100

Regarding the PA level by academic program, a statistically significant association was also found (X^2 =62.9; gl=8; p<0.01), indicating that the students who presented a higher proportion in the high classification (56,5%) are those who are studying a degree in physical education and those who have a higher percentage (44.4%) of inactivity or low level of PA are the students of a degree in early childhood education.

On the other hand, in relation to HRQoL, when asking how would you say your current health is compared to that of a year ago?, which refers to the "declared evolution of health" (HT), it was found that more Half (55.9%) of the students stated that this had improved somewhat or a lot in relation to a year ago, a very positive aspect in terms of quality of life. However, 13.5% of the students (n=34) stated that their health had gotten worse to some extent (Table 2).

Physical Activity Level and Health-Related Quality of Life
Jaramillo Metrio et al.

RIICS

Sex		Much better now than a year ago	Somewhat better now than a year ago	More or less the same as a year ago	Somewhat worse now than a year ago	Much worse now than a year ago	Total
Table 2. Declared evolution of general health and by sex.							
Male	no	48	47	41	15	1	152
	%	31.6%	30.9%	27.0%	9.9%	0.7%	100%
Female	no	14	32	36	14	4	100
	%	14.0%	32.0%	36.0%	14.0%	4.0%	100%
Total	no	62	79	77	29	5	252
	%	24.6%	31.3%	30.6%	11.5%	2.0%	100%

When HT was related to age and the semester completed, there were no statistically significant correlations or associations between these variables (r_s=0.005 and 0.117; p>0.05). In the case of socioeconomic stratum, the relationship was presented as low positive, although statistically significant (r_s =0.14; p=0.026). Regarding the analysis by sex, there was a statistically significant association (X^2 = 13.50; gl=4; p<0.01). It is possible to establish that the highest percentage of male participants (31.6%) answered that their health is "much better now than a year ago", while the highest percentage of women (36.0%) selected the answer "more or less the same as a year ago", which indicates that men have a tendency to have a positive perception of their health over time and women simply perceive it as the same as a year ago (Table 2).

When associating the HT by academic program (Table 3), a statistical association was found (X^2 =38.14; gl=16; p<0.01), in which it was observed that the students of the degree in physical education and sport stand out because their health is "much better now than a year ago" (36.3%); in the bachelor's degree in artistic education, the trend is that health is "more or less the same as a year ago" (40.0%); in early childhood education, students say their health is "somewhat better now than a year ago" (33.3%) and "more or less the same as a year ago" (33.3%); in the degree in humanities and Spanish language, with 45.5%, the most registered response was "more or less the same as a year ago"; and technology in sports training appears with 34.6%, answering "somewhat better now than a year ago".

Regarding the HRQoL dimensions, all of them presented positive assessments, that is, median scores above 50, which indicates favorable perceptions of health in this population group. However, the dimensions of physical function (md=100; cv=16), physical role (md =100; cv=0.36) and emotional role (md=100; cv=0.62) were the ones with the highest score. The dimension with the lowest perception (md=60; cv=0.25) was vitality, an aspect to highlight if one takes into account that this study was carried out on a young population (m=22 years; sd = 4.2).

When relating the dimensions of HRQoL to the variables age and socioeconomic status, no statistically significant correlations or associations were found between these variables (r_s =-0.114; r_s =0.121; p>0.05), so age and stratum do not seem to be determinant variables of

Physical Activity Level and Health-Related Quality of Life
Jaramillo Metrio et al.

RﬓCS

Academic program		Much better now than a year ago	Somewhat better now than a year ago	More or less the same as a year ago	Somewhat worse now than a year ago	Much worse now than a year ago	Total
Degree in physical education and sport	no	45	37	28	13	1	124
	%	36.3%	29.8%	22.6%	10.5%	0.8%	100%
Bachelor of Arts Education	no	2	8	10	5	0	25
	%	8%	32%	40%	20%	0%	100%
Bachelor of Early Childhood Education	no	4	11	11	4	3	33
	%	12.1%	33.3%	33.3%	12.1%	9.1%	100%
Bachelor's Degree in Humanities and Spanish Language	no	3	14	20	6	1	44
	%	6.8%	31.8%	45.5%	13.6%	2.3%	100%
Technology in sports training	no	8	9	8	1	0	26
	%	30.8%	34.6%	30.8%	3.8%	0%	100%

Table 3. Stated health evolution by academic program.

Note. n=252

HRQoL in this university population. In the case of the variable semester completed in the dimensions of general health (r_s=-0.184; $p<0.01$) and emotional role (r_s=-0.129; $p<0.05$), a low negative correlation was presented, although statistically significant, which indicates that, as they advance in their careers, young university students tend to have a lower perception of their HRQoL regarding their general health and emotional role.

When evaluating the HRQoL dimensions according to gender, it was found that, with the exception of the physical role dimension ($p>0.05$), in all the other dimensions there were statistically significant differences ($p<0.05$), and on all occasions the perceptions were in favour of men (Table 4). In short, as mentioned above, HRQoL tends to be positive in the university population, although it is less positive in women.

When analyzing the dimensions of the HRQOL based on the academic program to which the students belong (Table 5), it was found that in all the dimensions there were statistically significant differences ($p<0.01$), from which it is possible to highlight the following: the Undergraduate students in physical education and sports are the ones who presented the best perception of HRQoL in all dimensions, followed by students of technology in sports training. In the emotional role dimension, students with a degree in artistic education, the degree in early childhood education, and the degree in humanities and Spanish language presented a negative assessment of HRQoL (md = 33.33). In the bodily pain dimension, the assessment was also negative, and it occurred in students with a degree in artistic education and a degree in humanities and Spanish language (md = 42). In this last group of students there was also a negative assessment (md = 48) in the mental health dimension.

Physical Activity Level and Health-Related Quality of Life
Jaramillo Metrio et al.

R♱CS

Table 4. HRQoL dimensions according to sex.							
HRQoL dimension	**Sex**				**UMW**	**p**	**d**
	Male (n=152)		**Female (n=100)**				
	md	**cv**	**md**	**cv**			
General health	72	0.27	57	0.29	5409.50	0.001	0.356
Physical Function	100	0.18	97.50	0.14	6269.00	0.007	0.412
Physical Role	100	0.33	100	0.41	7080.50	0.266	
Emotional Role	100	0.53	66.67	0.76	6062.00	0.003	0.399
Social function	75	0.33	62.50	0.41	5966.50	0.003	0.393
Body ache	62	0.44	52	0.52	6330.00	0.023	0.416
Vitality	65	0.23	55	0.28	5037.00	0.001	0.331
Mental health	68	0.27	56	0.29	5601.50	0.001	0.369

Note. n=252

Finally, in the correlative analysis, in the first instance the variables referring to the HRQoL dimensions were related to each other (Table 6), finding that they all presented positive correlation, between low and moderate, in addition to having been statistically highly significant (p< 0.01). Therefore, in the general sample, the better the perception of one HRQoL dimension, the better it will be in others. This association was also presented with the declared evolution of health, which, having an inverse score, its correlation was negative, because it is also possible to infer a good HRQoL in all dimensions if the perception of change in health is also positive.

On the other hand, when relating the HRQoL dimensions with the PA level (Table 6), no statistically significant correlation or association was found between them (p>0.05). However, when relating the PA classification with the declared health evolution (inverse variable), this was low negative, but statistically significant (r_s =-0.187; p=0.003). Therefore, the better the level of physical activity, the better the perception of the declared evolution of health.

Discussion

The results of this research show that the levels of physical activity of university students are not related to the dimensions of HRQoL, so its approach from the university and institutional culture can be done independently. This shows that it is essential to maintain and improve both high levels of physical activity and the positive perception of HRQoL, since they are fundamental elements in the training and well-being of young university students [1].

Despite finding positive HRQoL values and moderate levels of PA in most of the investigated subjects, it is necessary to find the reasons why women and careers not associated with sports sciences and physical activity tend to have lower evaluations. positive in their HRQOL and PA, in order to develop actions that are in favor of an ideal of training that integrates aspects related to the health and quality of life of students.

HRQoL dimension	Degree in physical education and sport (n=124)		Bachelor's degree in art education (n=25)		Bachelor's degree in early childhood education (n=33)		Bachelor's degree in humanities and Spanish language (n=44)		Technology in sports training (n=26)		Kruskal-Wallis	p	H_R^2
	md	cv	md	cv	md	cv	md	cv	md	cv			
General health	77	0.25	57	0.23	62	0.27	52	0.24	72	0.26	57.27	0.001	0.229
Physical Function	100	0.16	90	0.20	95	0.11	100	0.19	100	0.14	24.20	0.001	0.097
Physical Role	100	0.28	100	0.49	100	0.37	75	0.49	100	0.29	27.43	0.001	0.110
Emotional Role	100	0.52	33.33	0.85	33.33	0.82	33.33	0.75	100	0.42	23.46	0.001	0.094
Social function	75	0.30	50	0.45	62.50	0.36	50	0.47	75	0.32	37.27	0.001	0.149
Body ache	74	0.41	42	0.48	62	0.53	42	0.42	62	0.40	41.12	0.001	0.164
Vitality	67.50	0.22	50	0.18	60	0.30	50	0.24	57.50	0.27	38.94	0.001	0.156
Mental health	72	0.25	56	0.15	64	0.29	48	0.29	62	0.31	39.98	0.001	0.160

Table 5. Dimensions of the HRQoL according to the academic program.

Note. n=251; df =4

		General health	Physical Function	Physical Role	Emotional Role	Social function	Body ache	Vitality	Mental health	HF level
Stated health evolution	r_s	-0.582 **	-0.352 **	-0.291 **	-0.310 **	-0.350 **	-0.357 **	-0.404 **	-0.361 **	-0.187 **
	p	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
General health	r_s		0.347 **	0.321 **	0.385 **	0.431 **	0.525 **	0.514 **	0.472 **	0.102
	p		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.105
Physical Function	r_s			0.289 **	0.210 **	0.242 **	0.315 **	0.212 **	0.327 **	0.116
	p			0.000	0.001	0.000	0.000	0.001	0.000	0.065
Physical Role	r_s				0.377 **	0.404 **	0.413 **	0.337 **	0.409 **	0.003
	p				0.000	0.000	0.000	0.000	0.000	0.964
Emotional Role	r_s					0.498 **	0.356 **	0.404 **	0.528 **	0.094
	p					0.000	0.000	0.000	0.000	0.138
Social function	r_s						0.479 **	0.525 **	0.692 **	0.010
	p						0.000	0.000	0.000	0.877
Body ache	r_s							0.458 **	0.393 **	-0.044
	p							0.000	0.000	0.489
Vitality	r_s								0.624 **	-0.029
	p								0.000	0.644
Mental health	r_s									0.010
	p									0.875

Table 6. Correlations between the HRQoL dimensions and the PA level.

Note. n=252; **$p<0.01$

Physical Activity Level and Health-Related Quality of Life
Jaramillo Metrio et al.

R**CS

The findings of this study denote a notable predominance of students at a Moderate level of PA, 60.3% of the sample to be more exact. This result is opposite to what was found by Alcáncela et al. [26], who found that the Low PA level was the most repeated among university students. However, it is important to mention that the cited study was carried out during the COVID-19 pandemic. In the present investigation, a greater relationship was identified between the male sex and a High PA level (19%), unlike the female sex, which also had a significant association with the low or inactive PA level (32%). That result is completely consistent with the data presented by Corbi et al. [27], since they found a higher percentage of university men who currently practice PA. In the case of women, they presented higher percentages of inactivity and abandonment regarding the practice of PA.

It is also possible to establish that the results of this study did not identify any correlation between the level of PA and age, or the semester studied. Similar data were reported by Praxedes et al. [28], who say that there is no correlation between the practice of PA and the age of the subjects. However, compared to the semester completed, Pedišić [29] found that in the last university semesters and in subjects with an age greater than or equal to 21 years, higher levels of PA are present, which differs from the results of this study.

On the other hand, and in terms of the variables related to HRQoL, the study by García et al. [30] reported that university women present a higher perception in the Vitality dimension than men, and these present higher values in the Social Function dimension. However, in the present study statistically significant data was reported in almost all dimensions in favor of men, only with the exception of the Physical Role dimension. It is important to mention that the Vitality and Social Function dimensions demonstrated, in an investigation carried out by Barbosa et al. [31], a high relationship with the practice of PA and age, an aspect that was not found in this investigation. Similarly, the study by Barbosa et al. [31] did not report differences by sex in these two dimensions, which is contrary to what was found in this study, in which men presented better HRQoL scores.

Regarding the associations between the level of PA and HRQoL, it should be noted that there was only a significant correlation of PA with the declared Health Evolution. With the rest of the variables (dimensions) there was no type of association, unlike what was reported by Lima et al. [32], who reported that weekly PA is significantly related to Quality of Life, which was also described in a study carried out in Spain [33], whose results show that people who do more PA seem to have better levels of quality of life.

Among the main limitations of this study are those of its methodological design, in terms of its temporal scope, since it only accounts for what was expressed by its participants at a particular moment, in addition to the fact that it is not possible to establish relationships with its results. cause effect.

In terms of prospective, it is suggested to implement studies of a longitudinal nature, whether it involves multiple data collections over time, in order to monitor PA levels and HRQoL, or investigations that involve intervention processes aimed at to improve the variables addressed in this study, especially in those groups where the assessments were not so positive.

Physical Activity Level and Health-Related Quality of Life
Jaramillo Metrio et al.

R**CS

Conclusions

The levels of physical activity in the investigated university population tend to be, in general, moderates. However, when discriminating PA by sex, it is women who present a considerable decrease or inactivity in relation to men, which makes them a subgroup of interest when establishing institutional policies based on the practice of activity fitness and sports for health, since this is an institutional letter in terms of university well-being.

The perception of HRQoL in students from the Faculty of Education is generally positive in all dimensions, but it is more so in those students in the field of education who see physical activity and sport as their object of study, such as case of undergraduate students in physical education and technology in sports training. However, it is necessary to consider that students in more advanced semesters tend to have a less positive perception of their quality of life than those who start their training process, especially in the dimensions of general health and emotional role. In the same way, the women investigated from the Faculty of Education have a less positive perception of their HRQoL than men, which makes it possible to suggest to the institutional instances of a university nature to urge and promote policies of a differential and inclusive nature in the field of health and well-being in the female population, in a way that allows this population group to improve their perception of HRQoL.

In correlational terms, physical activity levels were associated with a better perception of the declared evolution of health. Therefore, doing physical activity and sports in terms of the WHO recommendations, in terms of moderate and vigorous activities, implies a kind of positive evolution over time of what university students perceive of their health.

Finally, despite the fact that physical activity and HRQoL have been studied on numerous occasions in the university population in different contexts, these variables tend not to be related, that is, to operate separately. In addition, some sociodemographic variables such as sex, the type of professional career and the current semester are the ones that tend to be related to them, which implies that further studies should be carried out that consider issues related to habits, customs and particularities of the culture. university, that help to explain in a more contextualized way the aspects related to the quality of life of their students.

References

1. Cândido DA, Saint DR, Molina GE, Fontana KE, Junqueira LF, Grossi LG. Insufficient level of physical activity is associated with reduced quality of life and night-time studying in Brazilian undergraduate students. Revista Brasileira de Ciencias do Esporte. 2019;41(3):322–30. doi: https://doi.org/10.1016/j.rbce.2018.04.017

2. Ferrero L, Stein M. Hábitos de salud de estudiantes del primer año del Profesorado y Licenciatura de Educación Inicial de la Facultad de Humanidades de la Universidad Nacional del Nordeste, Chaco, Argentina. Diaeta. 2020;38(170):45–52. Disponible en: https://onx.la/488fc

3. Martins J, Cabral M, Elias C, Nelas R, Sarmento H, Marques A, et al. Physical activity recommendations for health: Knowledge and perceptions among college students. Retos. 2019;36(2):290–6. doi: https://doi.org/10.47197/retos.v36i36.68324

4. Fagaras SP, Radu LE, Vanvu G. The Level of Physical Activity of University Students. Procedia Soc Behav Sci. 2015;197:1454–7. doi: http://dx.doi.org/10.1016/j.sbspro.2015.07.094

Physical Activity Level and Health-Related Quality of Life
Jaramillo Metrio et al.

R!!CS

5. Concha Y, Guzmán E, Valdés P, Lira C, Petermann F, Celis C. Factores de riesgo asociados a bajo nivel de actividad física y exceso de peso corporal en estudiantes universitarios. Rev Med Chil. 2018;146(8):840–9. doi: http://dx.doi.org/10.4067/s0034-98872018000800840

6. Herazo Beltran Y, Nuñez-Bravo N, Sánchez-Guette L, Vásquez-Osorio F, Lozano-Ariza A, Torres-Herrera E, et al. Estilos de vida relacionados con la salud en estudiantes universitarios. Retos. 2020;38:547–51. doi: https://doi.org/10.47197/retos.v38i38.72871

7. Barbosa-Granados S, Urrea-Cuellar A. Influencia del deporte y la actividad física en el estado de salud físico y mental: una revisión bibliográfica. Katharsis. 2018;25:171–186. Disponible en: https://revistas.iue.edu.co/index.php/katharsis/article/view/1023

8. König HH, Heider D, Lehnert T, Riedel-Heller SG, Angermeyer MC, Matschinger H, et al. Health status of the advanced elderly in six european countries: Results from a representative survey using EQ-5D and SF-12. Health Qual Life Outcomes. 2010;8:143. doi: https://doi.org/10.1186/1477-7525-8-143

9. Puerta Mateus KC, de La Rosa Luna R, Ramos Vivanco AM. Levels of physical activity and its relation between the distribution by sex and academic program in a university. MHSalud. 2019;16(2). doi: https://doi.org/10.15359/mhs.16-2.4

10. Adamas Uribe EA. Actividad física: relevancia en la intervención fonoaudiológica. Revista de Investigación e Innovación en Ciencias de la Salud. 2019;1(2):38–51. doi: https://doi.org/10.7440/res64.2018.03

11. López-Walle J, Tristán J, Tomás I, Gallegos-Guajardo J, Gongora E, Hernández-Pozo M del R. Estrés percibido y felicidad auténtica a través del nivel de actividad física en jóvenes universitarios. Cuadernos de Psicología del Deporte. 2020;20(2):265–75. doi: https://doi.org/10.6018/cpd.358601

12. Cadarso Suárez A, Dopico Calvo X, Iglesias-Soler E, Cadarso Suárez CM, Gude Sampedro F. Calidad de vida relacionada con la salud y su relación con la adherencia a la dieta mediterránea y la actividad física en universitarios de Galicia. Nutricion Clinica y Dietetica Hospitalaria. 2017;37(2):42–9. doi: https://doi.org/10.12873/372cadarso

13. Molina R, Sepúlveda R, Carmona R, Molina T, Mac-Ginty S. Calidad de vida relacionada con la salud en estudiantes universitarios de primer año. Revista Chilena De Salud Pública. 2016;20(2):101–12. doi: https://doi.org/10.5354/0719-5281.2016.44928

14. Díaz Cárdenas S, Martínez Redondo M, Zapata Teherán AM. Rendimiento académico y calidad de vida relacionada con la salud en estudiantes de odontología. Salud Uninorte. 2017;33(2):139–51. doi: https://doi.org/10.14482/sun.33.2.10540

15. Riveros F, Vinaccia-Alpi S. Relación entre variables sociodemográficas, patogénicas y salutogénicas, con la calidad de vida en estudiantes universitarios colombianos. Revista de Psicopatologia y Psicologia Clinica. 2017;22(3):229–41. doi: https://doi.org/10.5944/rppc.vol.22.num.3.2017.16330

Physical Activity Level and Health-Related Quality of Life
Jaramillo Metrio et al.

R🜚CS

16. Patiño Villada F, Arboleda Serna V, Arango Vélez E, Botero Restrepo S, Arango Paternina C. Depresión, Ansiedad y Calidad De Vida Relacionada Con La Salud, De Estudiantes Universitarios de Educación Física y Deportes. Educación Física y Deportes. 2019;38(2):239–60. doi: https://doi.org/10.17533/udea.efyd.v38n2a02

17. Cauas D. Definición de las variables, enfoque y tipo de investigación. Biblioteca electrónica de la universidad Nacional de Colombia. 2015;12. Disponible en: https://acortar. link/cnLmRq

18. Grisales H. Muestreo en estudios descriptivos. Medellín, Colombia: Universidad de Antioquia; 2001.

19. Craig CL, Marshall AL, Sjöström M, Bauman AE, Booth ML, Ainsworth BE, et al. International physical activity questionnaire: 12-country reliability and validity. Med Sci Sports Exerc. 2003;35(8):1381–95. doi: https://doi.org/10.1249/01.MSS.0000078924.61453.FB

20. Sevil Serrano J, Práxedes Pizarro A, Zaragoza Casterad J, del Villar Álvarez F, García González L. Barreras percibidas para la práctica de actividad física en estudiantes universitarios. Diferencias por género y niveles de actividad física. Universitas Psychologica. 2017;16(4):1–17. doi: https://doi.org/10.11144/Javeriana.upsy16-4.bppa

21. Mella-Norambuena J, Celis C, Sáez-Delgado F, Aeloiza A, Echeverria C, Nazar G, et al. Revisión sistemática de práctica de actividad física en estudiantes universitarios. Revista Iberoamericana de Ciencias de la Actividad Física y el Deporte. 2019;8(2):37–58. doi: http://dx.doi.org/10.24310/riccafd.2019.v8i2.6452

22. Ventura-León JL. Tamaño del efecto para Kruskal-Wallis: aportes al artículo de Domínguez-González et al. Investigación en Educación Médica. 2019; 8(30):135-136. Disponible en: https://acortar.link/vby0ju

23. Vilagut G, Ferrer M, Rajmil L, Rebollo P, Permanyer-Miralda G, Quintana JM, et al. El Cuestionario de Salud SF-36 español: una década de experiencia y nuevos desarrollos por los investigadores de la Red-IRYSS*. Gac Sanit. 2005;19(2):135–50. doi: https://doi. org/10.1157/13074369

24. General Assembly of the World Medical Association. World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. J Am Coll Dent. 2014;81(3):14–18. Disponible en: https://pubmed.ncbi.nlm.nih. gov/25951678/

25. Ministerio de Salud Nacional. Resolución número 8430 de 1993. Por la cual se establecen las normas científicas, técnicas y administrativas para la investigación en salud. Bogotá: Diario Oficial; 1993. Disponible en: https://cutt.ly/yfYs1G6

26. Aucancela-Buri FN, Heredia-León DA, Ávila-Mediavilla CM, Bravo-Navarro WH. Actividad Física en estudiantes universitarios antes y durante la pandemia covid-19. Polo del conocimiento. 2020;5(11):163–76. Disponible en: https://acortar.link/0Vao0c

27. Corbí Santamaría M, Palmero-Cámara C, Jiménez-Palmero A. Diferencias en los motivos hacia la actividad física de los universitarios según nivel de actividad y su relación con la satisfacción del servicio deportivo universitario. Retos. 2019;2041(35):191–5. doi: https://doi.org/10.47197/retos.v0i35.62284

Physical Activity Level and Health-Related Quality of Life
Jaramillo Metrio et al.

R**CS

28. Práxedes A, Sevil J, Moreno A, del Villar F, García-González L. Niveles de Actividad Fisica en Estudiantes Universitarios: Diferencias en función del género, la edad y los estados de cambio. Revista Iberoamerica de lPsicología del Ejercicio y Deporte. 2016;11(1):123–32. Disponible en: https://acortar.link/gGNK0o

29. Pedišić Ž, Rakovac M, Bennie J, Jurakić D, Bauman AE. Levels and Correlates of Domain-Specific Physical Activity in University Students: Cross-Sectional Findings From Croatia. / Razina I Korelati Tjelesne Aktivnosti U Različitim Domenama Kod Studenata: Rezultati Transverzalnog Istraživanja Iz Hrvatske. Kinesiology. 2014;46(1):12–22. Disponible en: https://hrcak.srce.hr/123713

30. García García J, Cufarfán López J. Calidad de vida en estudiantes universitarios con sobrepeso y obesidad: Diferencias por sexo. Interacciones: Revista de Avances en Psicología. 2019;5(3):1–5. doi: https://doi.org/10.24016/2019.v5n3.195

31. Barbosa-granados SH, Aguirre-Loaiza H. Actividad física y calidad de vida relacionada con la salud en una comunidad académica. Pensamiento Psicológico. 2020;18(2). doi: https://doi.org/10.11144/Javerianacali.PPSI18-2.afcv

32. Lima-Serrano M, Martínez-Montilla JM, Guerra-Martín MD, Vargas-Martínez AM, Lima-Rodríguez JS. Factores relacionados con la calidad de vida en la adolescencia. Gac Sanit. 2018;32(1):68–71. doi: http://dx.doi.org/10.1016/j.gaceta.2016.06.016

33. Paramio Leiva A, Gil-Olarte Márquez P, Guerrero Rodríguez C, Mestre Navas JM, Guil Bozal R. Ejercicio físico y calidad de vida en estudiantes universitarios. International Journal of Developmental and Educational Psychology Revista INFAD de Psicología [Internet]. 2017 Oct 22;2(1):437. doi: http://dx.doi.org/10.17060/ijodaep.2017.n1.v2.956